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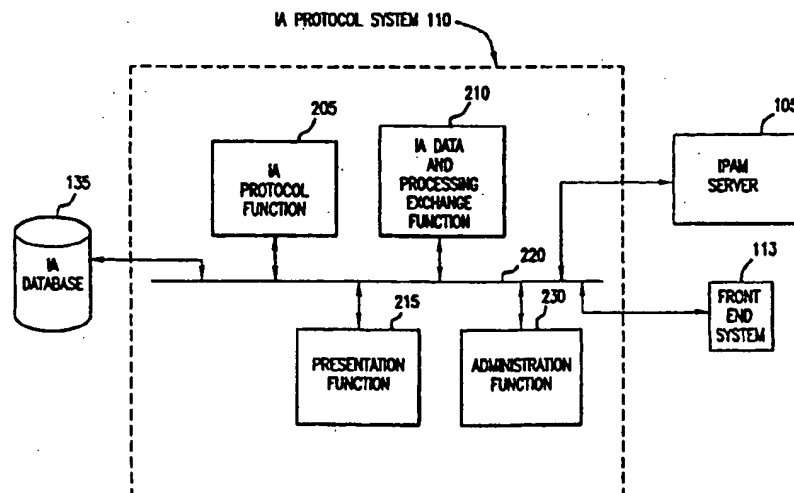
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: AN INTELLECTUAL ASSET PROTOCOL FOR DEFINING DATA EXCHANGE RULES AND FORMATS FOR UNIVERSAL INTELLECTUAL ASSET DOCUMENTS, AND SYSTEMS, METHODS, AND COMPUTER PROGRAM PRODUCTS RELATED TO SAME

**(57) Abstract**

An intellectual asset protocol for defining data exchange rules and formats for universal intellectual asset data objects, and systems, methods, and computer program products related to same. The system includes an intellectual asset protocol system that acts as an engine in the definition of data exchange rules and formats for universal intellectual asset documents. Also included is a front end system that preferably provides a graphical user interface to enable users to access the intellectual asset protocol system. In addition, an intellectual asset database is included that stores collections of intellectual asset objects (and information related to same), one or more embodiments of an intellectual asset protocol, and so forth. The intellectual asset protocol system interacts with an Intellectual Property Asset Manager (IPAM) server.

**An Intellectual Asset Protocol for  
Defining Data Exchange Rules and Formats for Universal  
Intellectual Asset Documents, and Systems, Methods, and  
Computer Program Products Related to Same**

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***Background of the Invention***

***Field of the Invention***

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The present invention is generally related to tools for data processing, and more particularly related to an intellectual asset protocol for defining data exchange rules and formats for universal intellectual asset data objects, such as documents.

***Related Art***

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Intellectual asset documents may include patents (U.S. and foreign), patent applications (U.S., PCT and foreign), trademarks (U.S. and foreign), trademark applications (U.S. and foreign), copyrights, trade secrets, license agreements, joint venture agreements, or any other type of data object that involves intellectual property. The efficient management of intellectual asset documents requires a structured way of exchanging data that represents one or more of these intellectual asset documents and/or the systems and processes that relate to them. These processes may include license tracking; audits and payments; patent and trademark prosecution and workflow; patent and trademark maintenance fee payment tracking and reporting; reporting and visualization of intellectual asset meta data; electronic submission of patent and trademark application; and so forth. Prior to the present invention, this structured way of exchanging data did not exist.

Individuals and/or industries that deal with intellectual asset documents (or are involved in the intellectual asset domain) are comprised of many different

### *Summary of the Invention*

The present invention is directed to an intellectual asset protocol for defining data exchange rules and formats for universal intellectual asset data objects, and systems, methods, and computer program products related to same.

5 The present invention includes an intellectual asset protocol system that acts as an engine in the definition of data exchange rules and formats for universal intellectual asset documents. The present invention also includes a front end system that preferably provides a graphical user interface to the users of the present invention to access the intellectual asset protocol system. The present  
10 invention may also include an intellectual asset database that stores collections of intellectual asset documents (and information related to same), one or more embodiments of an intellectual asset protocol, and so forth. The intellectual asset protocol system interacts with an Intellectual Property Asset Manger (IPAM) server 105, as will be described below.

15 Further features and advantages of the invention, as well as the structure and operation of various embodiments of the invention, are described in detail below with reference to the accompanying drawings. In the drawings, like reference numbers generally indicate identical, functionally similar, and/or structurally similar elements. The drawing in which an element first appears is  
20 indicated by the leftmost digit(s) in the corresponding reference number.

### *Brief Description of the Figures*

The present invention will be described with reference to the accompanying drawings, wherein:

25 FIG. 1 is a block diagram representing an operating environment according to an embodiment of the present invention;

FIG. 2 is a block diagram of functions or modules of the present invention connected by a network according to an embodiment of the present invention;

FIG. 16 illustrates how the IPAM server operates with XML documents and non-XML (e.g. EQV) documents according to an embodiment of the present invention;

5 FIGs. 17A-17C illustrate how the present invention supports an electronic document order and download protocol DTD according to an embodiment of the present invention;

FIG. 18 illustrates a model used for the SPML of the present invention according to an embodiment of the present invention;

10 FIG. 19 illustrates the template based streaming mechanism of the present invention according to an embodiment of the present invention;

FIG. 20 illustrates the visitation based steaming mechanism of the present invention according to an embodiment of the present invention;

15 FIG. 21 illustrates an abstract view of how applications may use different adapters in order to work differently with the same SPML document of the present invention according to an embodiment of the present invention; and

FIG. 22 illustrates a concrete view of how applications may use different adapters in order to work differently with the same SPML document of the present invention according to an embodiment of the present invention.

## *Detailed Description of the Preferred Embodiments*

### *I. Overview of The Present Invention*

20 The present invention includes an intellectual asset protocol for enabling the definition of the data and format of intellectual asset documents to facilitate the efficient exchange of electronic intellectual asset documents between disparate systems. The present invention contemplates an Intellectual Property Asset  
25 Manger (IPAM) server 105, an intellectual asset protocol system 110, a front end

system 113, and an intellectual asset database 135 as shown in FIG. 1 and described in detail below.

## II. System Architecture

### A. System Architecture Overview

FIG. 1 is a block diagram representing an example operating environment of the present invention. It should be understood that the example operating environment in FIG. 1 is shown for illustrative purposes only and does not limit the invention. Other implementations of the operating environment described herein will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein, and the invention is directed to such other implementations. FIG. 1 illustrates an example environment that includes an IPAM server 105, an intellectual asset protocol system 110, a front end system 113, an intellectual asset database 135, the global Internet 120 or other communication medium, government agencies 115, one or more intellectual asset document licensors 125 and/or one or more EPR systems 140.

As described below with reference to FIG. 3, IPAM server 105, intellectual asset protocol system 110, front end system 113 and intellectual asset database 135 may be implemented using hardware, software or a combination thereof and may be implemented in one or more computer systems or processing systems. Intellectual asset protocol system 110 will be described next.

Intellectual asset protocol system 110 acts as an engine for the present invention in the standardization of intellectual asset documents. Intellectual asset protocol system 110 is connected to IPAM server 105 and intellectual asset database 135. Intellectual asset protocol system 110 is also connected to the Internet 120 via the front end system 113. Requests from users can be made via front end system 113 to intellectual asset protocol system 110. The various functions provided by the present invention are not dependent on the source of the data. Although the embodiment of the present invention shown in FIG. 1

illustrates IPAM server 105, intellectual asset protocol system 110, front end system 113 and intellectual asset database 135 as separate functional components, several (or all) components may be combined as long as the functionality of each component still exists within the present invention as will be described below.

5 IPAM server 105 will be described next.

For convenience, IPAM server 105 will briefly be discussed herein, although the invention is not limited to this brief description. Briefly stated, IPAM server 105 deals with context data processing. IPAM server 105 may be used to define and select one or more contexts. Each context includes one or more

10 attributes, and a plurality of data objects that satisfy the attributes. A list of data objects contained in the selected contexts may be displayed. At least some of the data objects in the selected contexts may be processed. Such processing may involve generating hierarchical and/or directed acyclic graph data structures to represent relationships among the data objects. These data structures can then be

15 displayed in a variety of well-known techniques including but not limited to hyperbolic trees. Examples of such hierarchical or directed acyclic graph structures include claim trees, citation trees, and data object families, which may be displayed using hyperbolic trees.

In an embodiment, the contexts are groups. In other embodiment, the

20 contexts are each associated with a data object type. In this latter embodiment, the contexts include data objects of their respective data object types.

IPAM server 105 also supports the generation of annotations. IPAM server 105 supports a plurality of annotation types, including document annotations, group annotations, data object type annotations, case annotations,

25 and enterprise annotations. IPAM server 105 also supports form-based annotations.

In an embodiment, IPAM server 105 has a plug-in manager coupled thereto. The system shown in FIG. 1 may also include at least one plug-in coupled to the plug-in manager, and at least one external data processing component coupled to the plug-in. In an embodiment, the external data

30 processing component displays data using at least graphs. In another

embodiment, the external data processing component displays data using at least maps. The plug-in manager has a first application programming interface (API), and each external data processing component has a second API. The plug-in translates messages from the plug-in manager to the external data processing component to a format conforming to the second API, and translates messages from the external data processing component to the plug-in manager to a format conforming to the first API.

Embodiments of IPAM server 105 can process, display, and otherwise operate with patent equivalent text files (EQV). (Other embodiments of IPAM server 105 operate with other types of data.) Patent equivalent text files are described in U.S. Patent No. 5,623,681, which is herein incorporated by reference in its entirety. A patent equivalent text file includes equivalency information that establishes an equivalency relationship between the text in the patent equivalent text file and the image in the patent image file. For example, this equivalency information may include pagination information that enables the patent equivalent text file to be displayed having the same pagination (line breaks, column breaks, page breaks) as the patent image file. In an embodiment, a pagination module generates the patent equivalent text file by comparing the patent text in the patent text file with the patent image file to detect equivalency information. This equivalency information is then embedded in the patent equivalent text file, along with the patent text. While the pagination module is capable of performing the pagination operation automatically, in some cases some manual intervention is required. In accordance, an operator is sometimes involved with the pagination process performed by the pagination module. Front end system 113 of the present invention will be described next.

Front end system 113 may operate as a Web server. A Web server provides a GUI to users who wish to access intellectual asset protocol system 110. As is well-known in the relevant art(s), a Web server is a server process running at a Web site which sends out Web pages in response to Hypertext Transfer Protocol (HTTP) requests from remote browsers. An optional firewall (not shown) serves as the connection and separation between intellectual asset



protocol system 110 and the global Internet 120. Generally speaking, a firewall-- which is well-known in the relevant art(s)--is a dedicated gateway machine with special security precaution software. It is typically used, for example, to service Internet 120 connections and dial-in lines, and protects a cluster of more loosely administered machines hidden behind it from an external invasion. Intellectual asset database 135 of the present invention will be described next.

Intellectual asset database 135 stores collections of data that represent the current embodiments of intellectual asset protocols, intellectual asset documents and their processes, etc., used by the present invention. Here, in an embodiment, data stored in intellectual asset database 135 may be stored as a relational database. In a relational database, data is stored in the form of related tables. A relational database management system (DBMS) is used to manipulate data in the related tables. Relational databases are powerful because they require few assumptions about how data is related or how it will be extracted from the database. As a result, the same database can be viewed in many different ways. An important feature of relational systems is that a single database can be spread across several tables. This differs from flat-file databases, in which each database is self-contained in a single table.

Another embodiment of the type of database used by intellectual asset database 135 is a database design known as Hypertext. In a Hypertext database, any object, whether it be a piece of text, a picture, or a film, can be linked to any other object. Hypertext databases are particularly useful for organizing large amounts of disparate information, but they are not generally designed for numerical analysis.

Intellectual asset database 135 of present invention may also be implemented using a standard database access method such as Open DataBase Connectivity (ODBC). The goal of ODBC is to make it possible to access any data from any application, regardless of which DBMS is handling the data. ODBC manages this by inserting a middle layer, called a database driver, between an application and the DBMS. The purpose of this layer is to translate the application's data queries into commands that the DBMS understands. For this

to work, both the application and the DBMS must be ODBC-compliant – that is, the application must be capable of issuing ODBC commands and the DBMS must be capable of responding to them. Both the functions of the engine of IPAM server 105 and intellectual asset protocol system 110, and the data stored in intellectual asset database 135, will be discussed in further detail below. The global Internet 120 will be described next.

The global Internet 120 includes a plurality of external workstations (for example, government agencies 115, intellectual asset document licensors 125 and EPR systems 140, as shown in the embodiment of FIG. 1) that allow users (e.g., players within the intellectual asset domain) of the Internet 120 to remotely access and use intellectual asset protocol system 110 (via front end system 113). Note that the present invention may communicate with these external workstations via communication methods other than the Internet 120 (via Transmission Control Protocol/Internet Protocol (TCP/IP)), including, but not limited to, asynchronous dial up and asynchronous lease line. Asynchronous dial up, asynchronous lease line, and TCP/IP communication are well known terms in the relevant art. Government agencies 115 and intellectual asset document licensors 125 are addressed next.

Government agencies 115 include the U.S. Patent and Trademark Office, patent and trademark offices in foreign countries, and government agencies that are in the intellectual asset domain. Intellectual asset document licensors 125 include business entities or individuals who license an intellectual asset document. ERP (Enterprise Resource Planning) system 140 is described next.

ERP system 140 integrates many facets of a business, including planning, manufacturing, sales and marketing. As the ERP methodology has become more popular, software applications have emerged to help business managers implement ERP. Often EPR involves intellectual asset documents and the need to transfer and receive electronic intellectual asset documents with disparate intellectual asset software systems.

FIG. 2 is a block diagram of the functions or modules of intellectual asset protocol system 110 preferably connected by a network according to an

embodiment of the present invention. It should be understood that the particular intellectual asset protocol system 110 in FIG. 2 is shown for illustrative purposes only and does not limit the invention. Other implementations for performing the functions described herein will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein, and the invention is directed to such other implementations. As will be apparent to one skilled in the relevant art(s), all of the functions "inside" of intellectual asset protocol system 110 are preferably connected and communicate via a communication medium such as a network 220.

The topology of network 220 as shown in FIG. 2 is called a bus topology. In general, the topology of a network is the geometric arrangement of functions (i.e., computers) within the system. Other common types of network topologies include star and ring topologies. Although the present invention is illustrated in FIG. 2 as incorporating a bus topology, the present invention can equally be applied to other topologies.

The functions of intellectual asset protocol system 110 include an intellectual asset protocol function 205, an intellectual asset data and processing exchange function 210, a presentation function 215 and an administration function 220. The invention is not limited to these functions. The functions of intellectual asset protocol system 110 shown in FIG. 2 will be described in detail below in Section VIII after the description of an embodiment of the intellectual asset protocol of the present invention.

#### ***B. An Example Implementation of the Present Invention***

The present invention (i.e., IPAM server 105, intellectual asset protocol system 110, front end system 113, intellectual asset database 135, or any part thereof) may be implemented using hardware, software or a combination thereof and may be implemented in one or more computer systems or other processing systems. In fact, in one embodiment, the invention is directed toward one or more computer systems capable of carrying out the functionality described herein. An example of a computer system 300 is shown in FIG. 3. The computer system 300

***What is Claimed Is:***

1. A system for enforcing the standardization of data exchange for intellectual asset data objects, comprising:

a database having stored therein at least one intellectual asset protocol, wherein said at least one intellectual asset protocol defines at least one data exchange set of rules and formats for a type of intellectual asset data object;  
and

at least one engine, wherein said at least one engine determines whether an intellectual asset data object of said type conforms to said intellectual asset protocol.

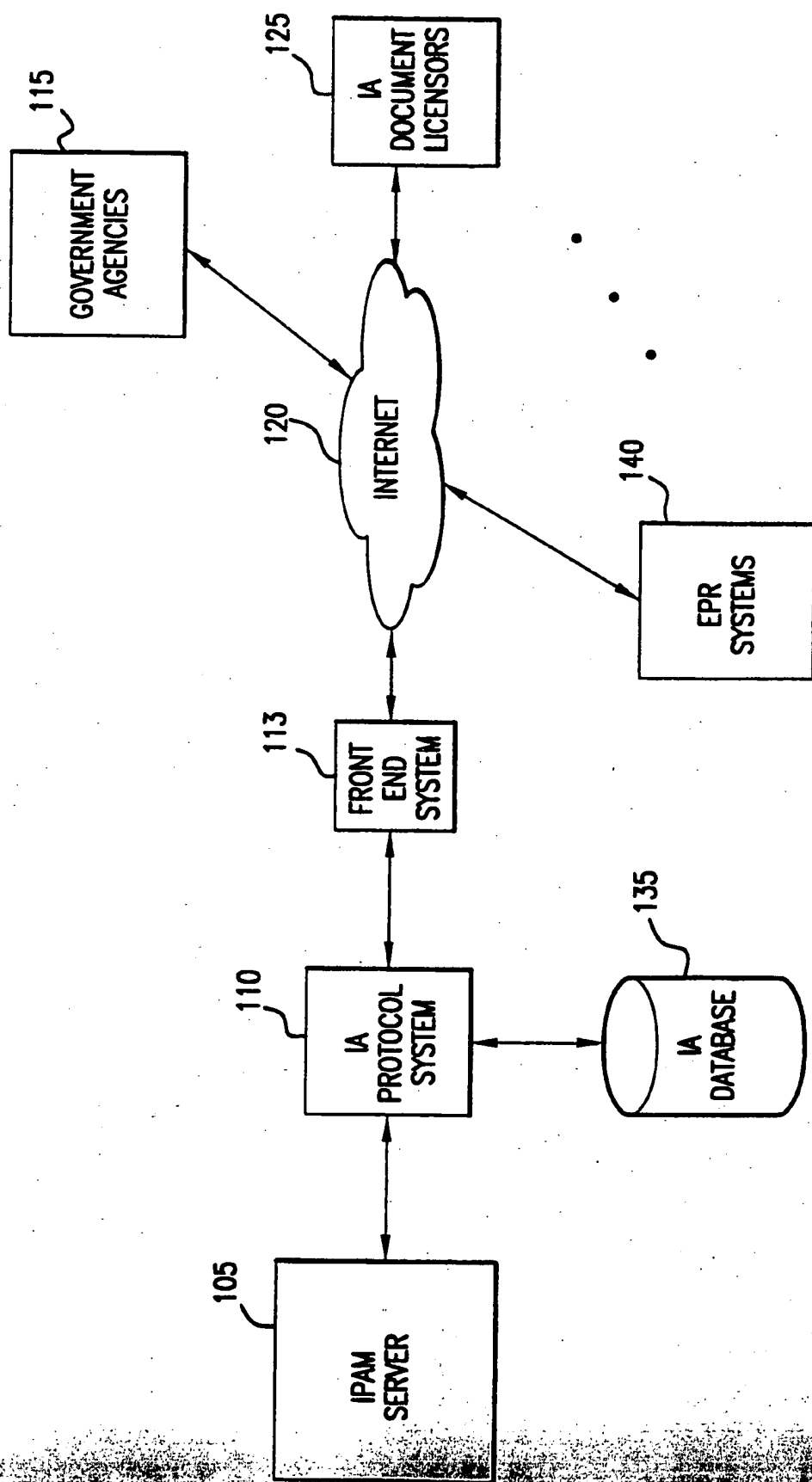


FIG.1

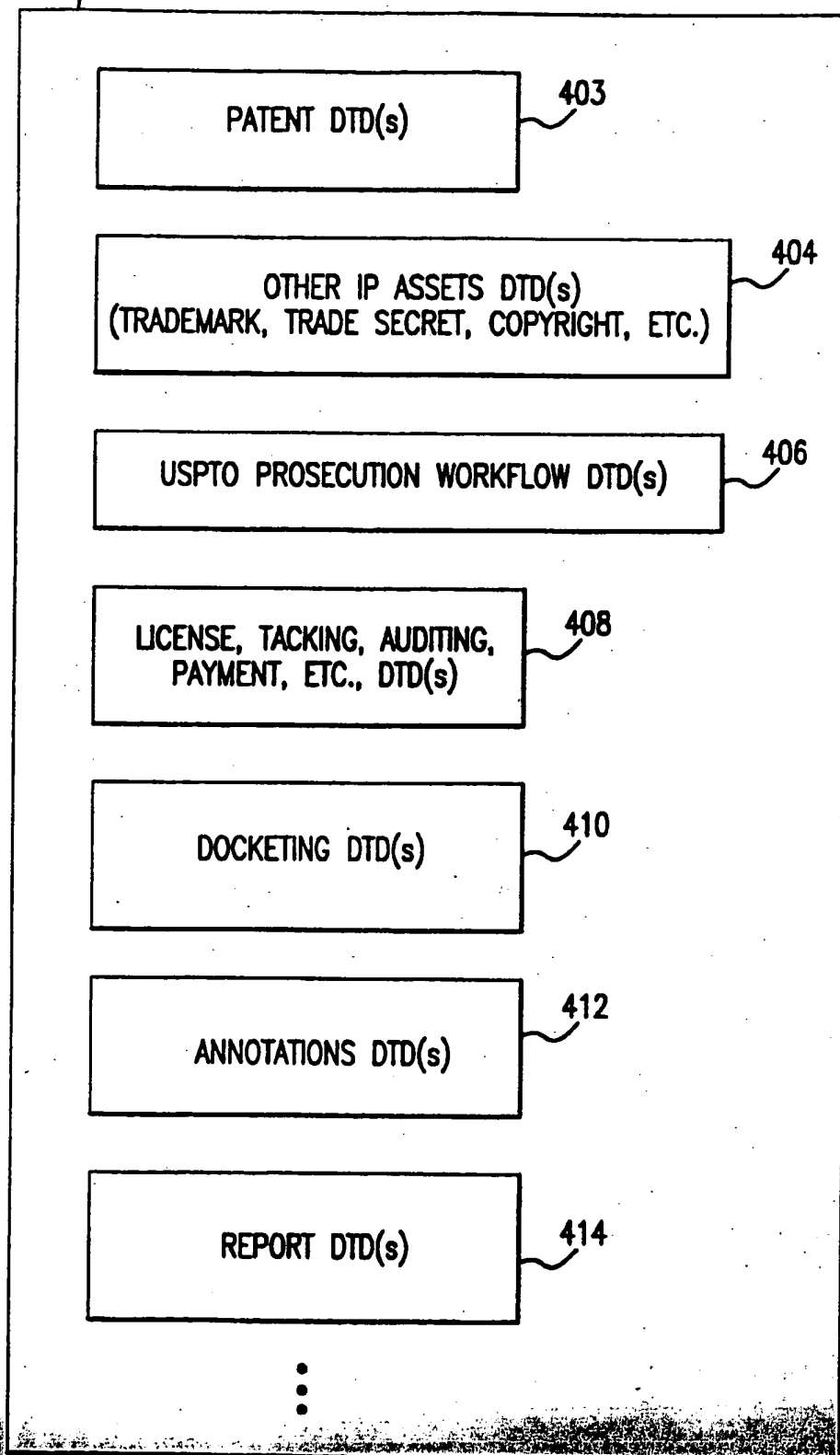
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FIG. 4

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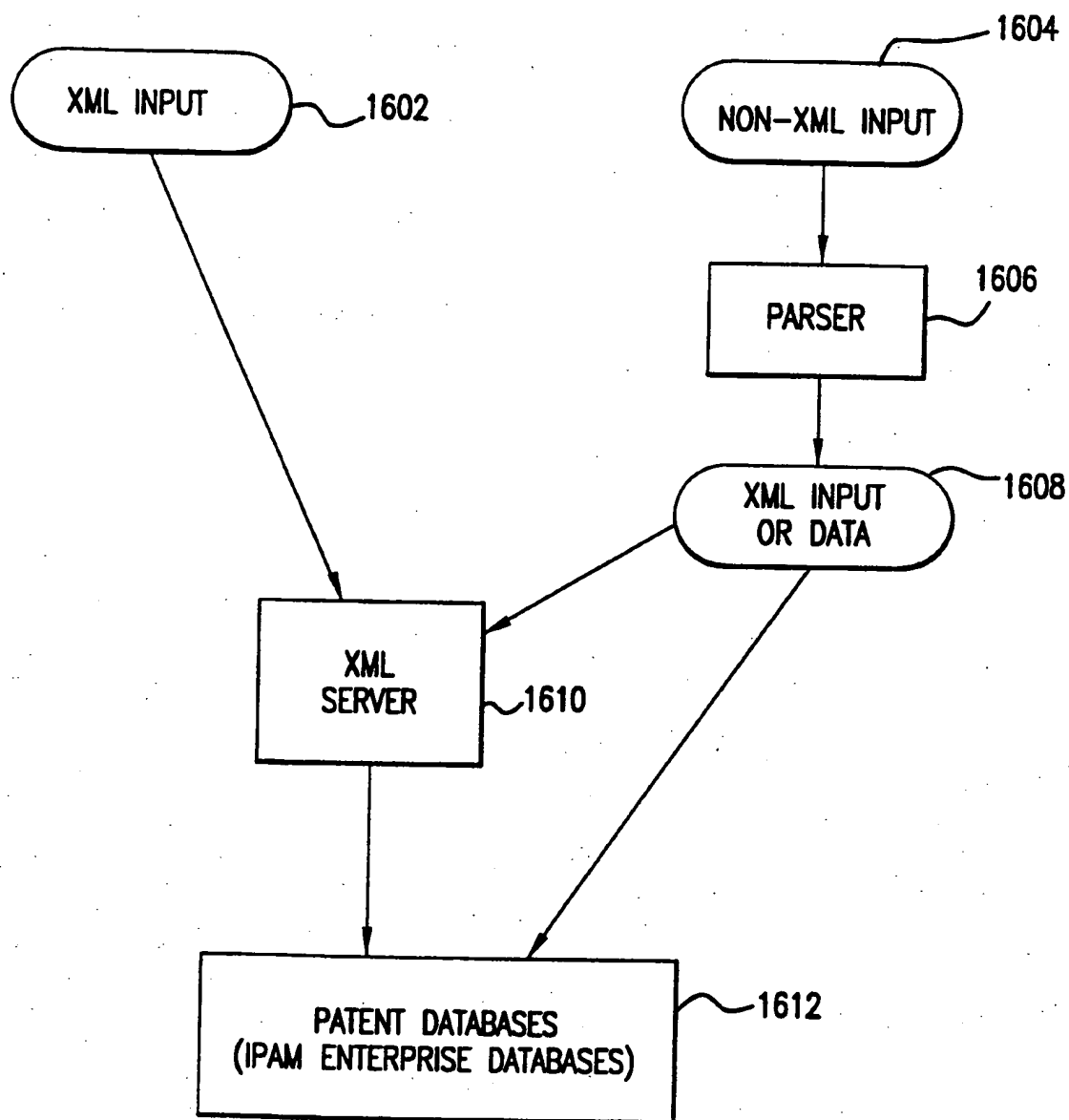


FIG.16